

Pickerel Lake

Site Description

Location

Water designation number (WDN)	22-0002-00
Legal description	T124N-R53W-Sec.15,22,23,26,27,34,35
County (ies)	Day
Location from nearest town	6.0 miles northeast of Grenville

Survey Dates and Sampling Information

Survey dates	June 6, 2013 (EF-SMB) June 18-20, 2013 (FN, GN) September 24, 2013 (EF-WAE)
Spring electrofishing-SMB (min)	30
Frame net sets (n)	18
Gill net sets (n)	6
Electrofishing-WAE (min)	60

Morphometry (Figure 1)

Watershed area (acres)	17,165
Surface area (acres)	981
Maximum depth (ft)	41
Mean depth (ft)	16

Ownership and Public Access

Pickerel Lake is a meandered lake owned by the State of South Dakota and the fishery is managed by the SDGFP. Four public access sites exist on Pickerel Lake; two are located within the Pickerel Lake Recreation Area (East and West Unit); one at the "Old Pickerel Lake Hatchery Site" located south of the Pickerel Lake Recreation Area-East Unit; and a section line access point, which does not include a boat ramp, in the northwest corner of the lake (Figure 1; Figure 2). Lands adjacent to the lake are owned by the State of South Dakota, Bureau of Indian Affairs, and private individuals. The shoreline is highly developed, with the exception of lands within the Pickerel Lake Recreation Area.

Watershed and Land Use

Land use within the Pickerel Lake watershed is primarily agricultural with a mix of pasture or grassland, cropland, and scattered shelterbelts.

Water Level Observations

The South Dakota Water Management Board established OHWM is 1845.6 fmsl, and the outlet elevation of Pickerel Lake is 1844.9 fmsl. On May 21, 2013 the elevation was 1845.3 fmsl; 0.8 ft higher than the fall 2012 elevation of 1844.5 fmsl. On October 8, 2013 the elevation was 1844.9 fmsl.

Fish Management Information

Primary species	Black Crappie, Bluegill, Smallmouth Bass, Walleye, Yellow Perch
Other species	Black Bullhead, Common Carp, Emerald Shiner, Largemouth Bass, Northern Pike, Rock Bass, Spottail Shiner, White Bass, White Sucker
Lake-specific regulations	Smallmouth/Largemouth bass: Only those <14", or 18" and longer may be taken. Of those no more than one may be 18" or longer. Walleye: minimum length 15".
Management classification	warm-water permanent
Fish consumption advisories	none

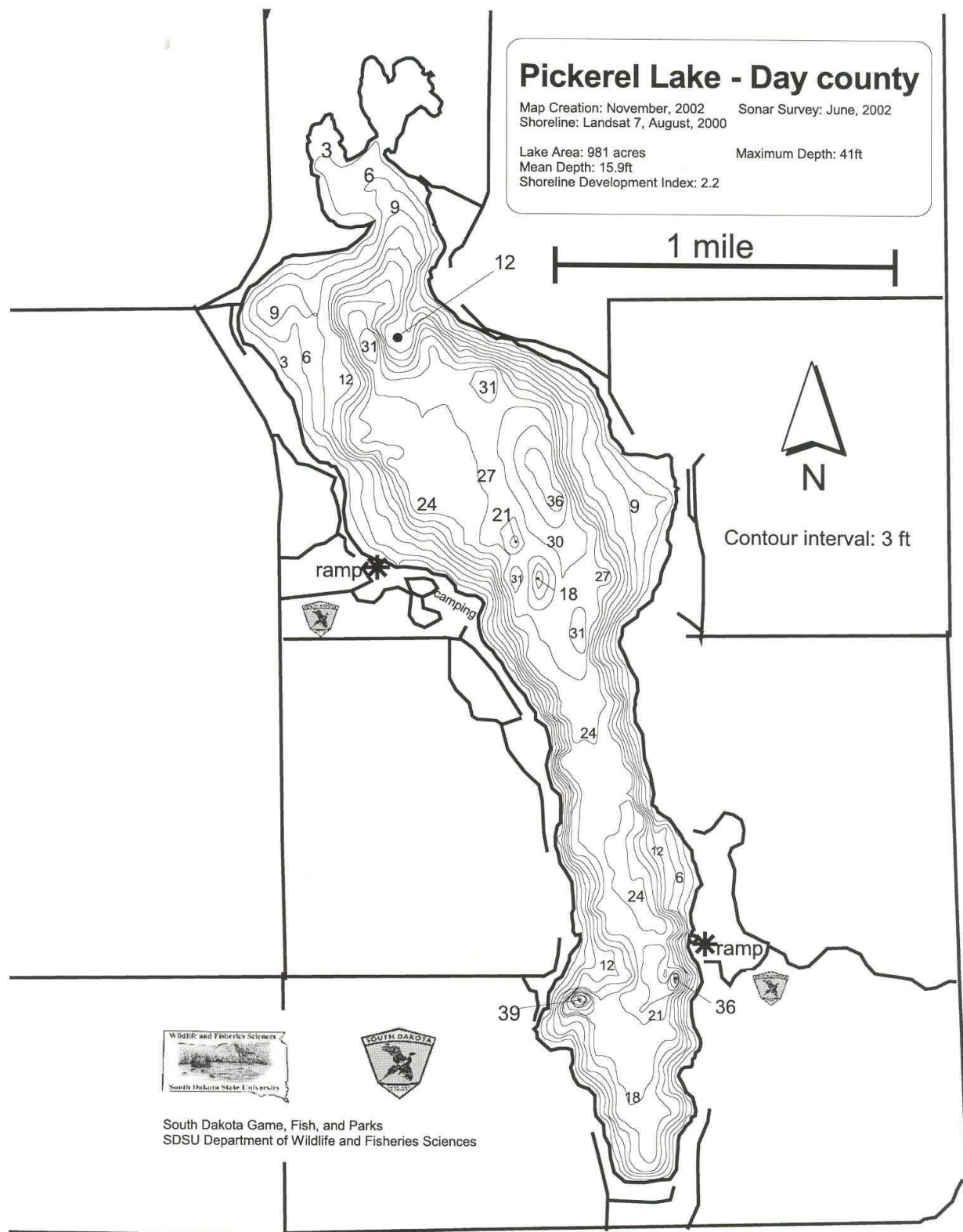


Figure 1. Map depicting access locations and depth contours for Pickerel Lake, Day County, South Dakota.



Figure 2. Map depicting geographic location of several Day County, South Dakota lakes including Pickerel Lake (top). Also noted are public access sites and standardized net locations for Pickerel Lake. PLFN= frame nets; PLGN=gill nets

Management Objectives

- 1) Maintain a mean frame net CPUE of stock-length Black Crappie ≥ 10 , a PSD of 30-60, and a PSD-P of 5-10.
- 2) Maintain a mean frame net CPUE of stock-length Bluegill ≥ 25 , a PSD of 30-60, and a PSD-P of 5-10.
- 3) Maintain a moderate density Smallmouth Bass population with a PSD of 40-70, and a PSD-P of 10-40.
- 4) Maintain a mean gill net CPUE of stock-length Walleye ≥ 10 , a PSD of 30-60, and a PSD-P of 5-10.
- 5) Maintain a mean gill net CPUE of stock-length Yellow Perch ≥ 30 , a PSD of 30-60, and a PSD-P of 5-10.
- 6) Maintain a mean frame net CPUE of stock-length Black Bullhead ≤ 100 .

Results and Discussion

Pickerel Lake is the uppermost lake in a chain of lakes known as the Waubay Lakes Basin. Pickerel Lake is highly developed with much of the shoreline supporting residential housing and cabins. In addition, the Pickerel Lake Recreation Area (East and West Unit) is located on the lake shore (Figure 1; Figure 2). As a result, the lake is a very popular recreational destination, especially during the summer months. Currently, Pickerel Lake is primarily managed for panfish (i.e., Black Crappie, Bluegill, and Yellow Perch), Smallmouth Bass and Walleye. However, other species such as Northern Pike, Rock Bass, and White Bass also contribute to the fishery.

Primary Species

Black Crappie: The mean frame net CPUE of stock-length Black Crappie was 9.3 (Table 1) and slightly below the minimum objective (≥ 10 stock-length Black Crappie/net night; Table 3). Since 2004, the mean frame net CPUE of Black Crappie has ranged from a low of 1.4 (2005) to a high of 15.6 (2008; Table 2). Based on the 2013 frame net catch, relative abundance is considered moderate.

In 2012, the decline in the relative abundance from 2008-2012 was attributed to mortality, either natural or by angling, of Black Crappie from the 2005 year class coupled with limited recruitment of additional year classes (Table 2; Figure 3; Kaufman et al. 2013). However in 2013, relative abundance increased as substantially more individuals from the 2005 and to a lesser degree the 2010 cohort were sampled (Table 2; Table 4). Both the 2005 and 2010 cohorts were well represented and comprised 68% and 28%, respectively, of Black Crappie in the frame net catch (Table 4).

Frame net captured Black Crappie ranged in TL from 20 to 32 cm (7.9 to 12.6 in), had a PSD of 100 and a PSD-P of 69 (Table 1; Figure 3). The PSD and PSD-P were above management objectives of 30-60 and 5-10 (Table 3) as individuals from the 2005 year class, which exceeded preferred-length (25 cm; 10 in), comprised a high proportion of the sample (Table 4; Figure 3).

Black Crappie from the 2005 year class, which have dominated the population in recent years, had a weighted mean TL at capture of 291 mm (11.5 in) at age 8; while the 2010 cohort had a weighted mean TL at capture of 220 mm (8.7 in) at age 3 (Table 5). Frame net captured Black Crappie had mean Wr values that ranged from 87-109 for all length categories (e.g., stock to quality) sampled. A decreasing trend in condition was apparent as TL increased.

Bluegill: The mean frame net CPUE of stock-length Bluegill was 12.8 (Table 1) and below the minimum objective (≥ 25 stock-length Bluegill/net night; Table 3). Since 2004, the mean frame net CPUE of Bluegill has ranged from a low of 2.6 (2011) to a high of 29.2 (2008; Table 2). Currently, relative abundance appears to be moderate.

Bluegill captured in frame nets ranged in TL from 11 to 26 cm (4.3 to 10.2 in), with a high proportion being \geq quality-length (15 cm; 6 in; Figure 4). The PSD was 99 and the PSD-P was 39 (Table 1), both exceeded management objectives of 30-60 and 5-10 (Table 3).

No age or growth information was collected in 2013. Bluegill condition was high with mean Wr values that were ≥ 115 for all length categories (i.e., stock to quality) sampled. Mean Wr values were likely influenced by spawning activity, as sampling took place during June.

Smallmouth Bass: Spring night electrofishing to monitor the Smallmouth Bass population is conducted biennially during odd years (e.g., 2013, 2015, 2017...). In 2013, the spring night electrofishing CPUE for Smallmouth Bass was 286.0 (Table 1) and represented a substantial increase from the 2009 and 2001 CPUE values of 77.4 and 51.0 (Table 2). Sampled Smallmouth Bass ranged in TL from 18 to 41 cm (7.1 to 16.1 in.; Figure 5), had a PSD of 30 and PSD-P of 6 (Table 1). Both PSD and PSD-P were below the management objective ranges (40-70 and 10-40, respectively; Table 3).

Scales were collected from a sub-sample of spring electrofished Smallmouth Bass. Age structure information suggested relatively-consistent recruitment, with nine year classes (2003, 2005-2011) being represented (Table 6). The 2010 cohort was abundant (i.e., comprised 63% of sampled Smallmouth Bass) and most individuals were < quality-length resulting in the low size structure (Table 6; Figure 5).

In 2013, the mean back-calculated length of age-3 and age-4 Smallmouth Bass was 233 and 284 mm (9.2 and 11.2 in.); compared to the region IV mean of means of 249 and 316 mm (9.8 and 12.4 in; Willis et al. 2001; Table 6). Smallmouth bass in the spring electrofishing catch had mean Wr values that ranged from 83 to 91 for all length categories (e.g., stock to quality) sampled. The mean Wr for stock-length Smallmouth Bass was 89 (Table 1). No length-related trends in condition were apparent.

Walleye: The mean gill net CPUE of stock-length Walleye was 17.3 (Table 1) and above the minimum objective (≥ 10 stock-length Walleye/net night; Table 3). Since 2004, Walleye relative abundance, as index by mean gill net CPUE values, has ranged from a low of 4.8 (2009) to high of 21.5 (2004; Table 2). Based on the 2013 gill net CPUE, relative abundance appears to be high.

Walleye captured in gill nets ranged in TL from 18 to 67 cm (7.1 to 26.4 in.), had a PSD of 16 and a PSD-P of 1 (Table 1; Figure 6). Both the PSD and PSD-P were below management objectives of 30-60 and 5-10, respectively; Table 3). In 2013, approximately 16% of Walleye in the gill net catch were above the 381-mm (15-inch) minimum length restriction (Figure 5).

Age estimates made using otoliths revealed the presence of eight year classes (2002 and 2006-2012) in the 2013 gill net catch (Table 7). The 2010 cohort, which coincided with a large fingerling stocking, was the most abundant and comprised 64% of Walleye in the gill net catch (Table 7; Table 9). Natural reproduction in Pickerel Lake has consistently been poor, with fall night electrofishing catch rates of age-0 Walleye $\leq 16.2/\text{hr}$ from 1998-2009 and limited contribution of naturally-produced year classes to the gill net catch (e.g., 2000, 2005, and 2009; Table 7). As a result, the Walleye population has relied on large fingerling stockings to establish year-classes (Table 7; Table 9; Lucchesi 1997). In 2013, Black Crappie and Bluegill relative abundance appeared to be low (based on the 2012 survey results; Table 2); therefore the decision was made to stock small fingerling Walleye rather than large fingerlings (Table 9). Fall night electrofishing suggested that a substantial year class was produced (i.e., mean CPUE of 139.0; Table 1); however, these fish have not survived their first winter of life and recruitment is currently unknown and will be assessed in future surveys.

Walleye in Pickerel Lake exhibit growth rates that are similar to other permanent lakes in the region (e.g., Enemy Swim and Clear). Since 2005, the weighted mean TL at capture of age-3 Walleye has ranged from 310 to 358 mm (12.2 to 14.1 in); while age-4 Walleye had weighted mean TL at capture values that ranged from 322 to 388 mm (12.7 to 15.3 in; Table 8). In 2013, the weighted mean TL at capture of age-3 and age-4 Walleyes was 346 and 385 mm (13.6 and 15.2 in), respectively (Table 8). Length-at-capture values are strongly influenced by size of large fingerlings stocked which can vary substantially. Gill net captured Walleye had mean W_r values that ranged from 82 to 89 for all length categories (e.g., stock to quality) sampled. The mean W_r of stock-length Walleye was 83 (Table 1) and no length-related trends in condition were apparent.

Yellow Perch: The mean gill net CPUE of stock-length Yellow Perch was 56.0 (Table 1), and above the minimum objective (≥ 30 stock-length Yellow Perch/net night; Table 3). The 2013 gill net CPUE represented an increase from the 2012 CPUE of 27.5 and was the highest recorded since 2004 (Table 2). Currently, relative abundance is high.

Gill net captured Yellow Perch ranged in TL from 9 to 28 cm (3.5 to 11.0 in), had a PSD of 63 and a PSD-P of 7 (Figure 7). The PSD and PSD-P values were near or within management objective ranges (Table 3) and indicated a relatively balanced population (defined as PSD of 30-60 and a PSD-P of 5-10; Table 3; Figure 7).

Otoliths have been collected from a sub-sample of gill net captured Yellow Perch from 2009-2013. Age structure information suggested that Yellow Perch in Pickerel

Lake have exhibited consistent recruitment of varying magnitude in recent years (Table 10). In 2013, seven year classes (2005, 2006, and 2008-2012) were present in the gill net catch (Table 10). Year classes produced in 2009 and 2010 were the most represented and comprised 44% and 37% of Yellow Perch in the gill net catch (Table 10).

Yellow Perch in Pickerel Lake tend to grow slower and be longer-lived than many populations in northeast South Dakota. Since 2009, weighted mean TL at capture values for age-3 Yellow Perch have ranged from 171 to 195 mm (6.9 to 7.7 in), when both males and females were combined (Table 11). In 2013, the weighted mean TL at capture for age-3 males and females was 183 and 194 mm (7.2 and 7.6 in), respectively (Table 11). As with most populations, males tend to be smaller at a given age than females, particularly at older ages (Table 11). Condition of gill net captured Yellow Perch was high with mean W_r values ≥ 102 for all length categories (e.g., stock to quality) sampled.

Other Species

Black Bullhead: Since 2004, Black Bullhead relative abundance has remained low to moderate, with mean frame net CPUE values that have not exceeded 20.0 (Table 2). In 2013, the mean frame net CPUE of stock-length Black Bullhead was 4.1 (Table 1) and within the management objective range (≤ 100 stock-length Black Bullhead/net night; Table 3).

Length-frequency analysis of Black Bullheads in the frame net catch suggested relative consistent recruitment of low magnitude in recent years, as few cm-length groups from 11 to 38 cm (4.3 to 15.0 in) were not represented (Figure 8). The PSD was 86 and the PSD-P was 54 (Table 1). No age or growth information was collected. Mean W_r values ranged from 82 to 102 for all length categories (e.g., stock to quality) sampled. The mean W_r for stock-length Black Bullheads was 92 (Table 1).

Northern Pike: Northern Pike typically are not sampled effectively during standardized mid-summer fish community surveys. As a result, mean gill net CPUE values are often low. Northern Pike relative abundance in Pickerel Lake has generally been considered moderate to high with mean gill net CPUE values that ranged from 0.5 to 6.0 from 2004-2013 (Table 2). In 2013, the mean gill net CPUE of stock-length Northern Pike was 4.7 (Table 1) and relative abundance appears to be high.

No age and growth information was collected. Northern Pike sampled in gill nets ranged in TL from 39 to 81 cm (15.4 to 31.9 in), had a PSD of 54, and a PSD-P of 7 (Table 1; Figure 9). Northern Pike in the gill net catch had mean W_r values that ranged from 77 to 80 for all length categories (e.g., stock to quality) sampled, with the mean W_r of stock-length fish being 78 (Table 1). No length-related trends in condition were apparent.

Rock Bass: The mean frame net CPUE of stock-length Rock Bass was 3.4 (Table 1). Rock Bass captured in the frame net catch ranged in TL from 15 to 24 cm (5.9 to 9.4 in.) with the majority being ≥ 18 cm (7 in; Figure 10). The PSD was 70 and the PSD-P was 21 (Table 1).

No age or growth information was collected in 2013. A decreasing trend in condition was apparent as TL increased; however, mean W_r values were ≥ 98 for all length categories (e.g., stock to quality) sampled.

Other: Common Carp, Spottail Shiner, White Bass and White Sucker were other fish species captured in low numbers during the 2013 survey (Table 1).

Management Recommendations

- 1) Conduct fish population assessment surveys on an annual basis (next survey scheduled in summer 2014) to monitor fish relative abundance, fish population size structures, fish growth, and stocking success.
- 2) Conduct spring night electrofishing on a biennial basis (odd years) to monitor Smallmouth Bass population parameters.
- 3) Collect otoliths from Black Crappie, Walleye, and Yellow Perch; scales from Smallmouth Bass to assess growth rates and age structure of each population.
- 4) Stock Walleye at (\approx 25 large fingerling/acre) to establish additional year classes if fall night electrofishing CPUE of age-0 Walleye and gill netting results warrant [i.e., low gill net CPUE of sub-stock (< 25 cm; 10 in) Walleye and/or fall night electrofishing CPUE < 75 age-0 Walleye/hour].
- 5) Maintain the 356-457 mm (14-18 in) protected slot length limit on Largemouth and Smallmouth Bass. The regulation is designed to increase the average size of black bass while allowing harvest of small bass to avoid slowing of growth (Blackwell and Lucchesi 2009).
- 6) Maintain the 381-mm (15 in) minimum length limit on Walleye. The regulation is designed to protect smaller fish from harvest and increase average fish size (Lucchesi and Blackwell 2009).
- 7) Partner with willing landowners on shoreline restoration projects designed to restore native plant fauna along highly-developed shorelines providing improvements to water quality and littoral habitats within the lake.

Table 1. Mean catch rate (CPUE; frame/gill nets= catch/net night, electrofishing= catch/hour) of stock-length fish, proportional size distribution of quality- (PSD) and preferred-length (PSD-P) fish, and mean relative weight (Wr) of stock-length fish for various fish species captured in frame nets, experimental gill nets and electrofishing from Pickerel Lake, 2013. Confidence intervals include 80 percent (\pm CI-80) or 90 percent (\pm CI-90). BLB= Black Bullhead; BLC= Black Crappie; BLG= Bluegill; COC= Common Carp; NOP= Northern Pike; ROB= Rock Bass; SMB= Smallmouth Bass; SPS= Spottail Shiner; WAE= Walleye; WHB= White Bass; WHS= White Sucker; YEP= Yellow Perch

Species	Abundance		Stock Density Indices				Condition	
	CPUE	CI-80	PSD	CI-90	PSD-P	CI-90	Wr	CI-90
<i>Frame nets</i>								
BLB	6.2	2.3	86	6	54	8	92	1
BLC	9.3	3.0	100	0	69	6	96	<1
BLG	12.8	5.3	99	1	39	6	125	1
NOP	0.1	0.1	50	50	50	50	81	25
ROB	3.4	1.3	70	10	21	9	105	1
SMB	3.2	0.8	26	10	2	3	88	1
WAE	0.4	0.1	29	35	0	---	79	4
WHB	0.1	0.1	100	0	100	0	82	10
YEP	0.2	0.2	75	59	0	---	96	10
<i>Gill nets</i>								
BLB	1.0	0.7	100	0	17	33	108	13
BLC	2.0	1.1	100	0	25	23	104	4
BLG	1.3	2.0	100	0	63	35	127	5
COC	0.2	0.2	100	---	100	---	99	---
NOP	4.7	1.2	54	17	7	9	78	2
SMB	1.0	0.8	33	43	33	43	88	6
SPS ¹	0.3	0.3	---	---	---	---	---	---
WAE	17.3	2.1	16	6	1	2	83	<1
WHB	1.8	1.3	100	0	91	17	93	2
WHS	1.7	0.9	100	0	100	0	107	4
YEP	56.0	21.7	63	5	7	2	107	<1
<i>Electrofishing</i>								
SMB ²	286.0	51.2	30	6	6	4	89	<1
WAE ³	139.0	42.7	---	---	---	---	---	---

¹ All fish sizes.

² Spring night electrofishing-SMB.

³ Fall night electrofishing-WAE; catch rate (CPUE) represents age-0 Walleye/hour

Table 2. Historic mean catch rate (CPUE; gill/frame nets = catch/net night, electrofishing = catch/hour) of stock-length fish for various fish species captured in gill nets, frame nets, and electrofishing in Pickerel Lake, 2004-2013. BLB= Black Bullhead; BLC= Black Crappie; BLG= Bluegill; COC= Common Carp; NOP= Northern Pike; ROB= Rock Bass; SMB= Smallmouth Bass; SPS= Spottail Shiner; WAE= Walleye; WHB= White Bass; WHS= White Sucker; YEP= Yellow Perch

Species	CPUE									
	2004	2005	2006 ¹	2007 ¹	2008	2009	2010	2011	2012	2013
<i>Frame nets</i>										
BLB	0.8	2.0	1.8	2.6	19.4	14.9	4.6	2.8	4.1	6.2
BLC	3.8	1.4	8.1	12.6	15.6	11.6	4.0	3.8	2.5	9.3
BLG	6.3	4.2	14.2	17.0	29.2	9.7	3.5	2.6	5.4	12.8
COC	0.1	0.0	0.2	0.1	0.0	0.0	0.0	0.0	0.1	0.0
NOP	0.1	0.5	0.3	0.7	0.7	0.4	0.3	0.0	0.6	0.1
ROB	3.8	7.6	4.7	4.4	8.4	3.7	4.3	1.2	2.6	3.4
SMB	1.6	1.9	5.6	5.6	5.4	1.9	1.9	1.6	5.1	3.2
WAE	0.2	0.2	0.7	0.6	0.3	0.6	0.8	0.1	1.8	0.4
WHB	1.1	0.0	0.2	1.8	0.2	0.1	0.0	3.4	1.9	0.1
WHS	0.9	0.3	0.2	0.9	0.3	0.0	0.3	0.0	0.1	0.0
YEP	1.6	0.8	1.2	2.3	0.2	0.1	0.2	0.5	1.4	0.2
<i>Gill nets</i>										
BLB	0.0	0.0	0.2	4.5	5.5	0.5	0.2	0.7	1.0	1.0
BLC	13.2	3.2	1.8	16.7	26.8	3.8	8.3	2.2	4.5	2.0
BLG	0.0	0.2	0.5	1.5	0.7	0.0	0.2	0.0	0.5	1.3
COC	0.2	0.0	2.5	1.7	0.7	0.3	0.0	0.0	0.0	0.2
NOP	1.5	0.5	1.8	6.0	5.7	3.3	2.7	3.8	3.3	4.7
ROB	2.2	0.5	1.0	1.8	0.2	0.2	0.0	0.7	0.2	0.0
SMB	0.5	3.3	2.0	1.2	0.3	1.3	0.3	0.5	0.8	1.0
SPS ²	2.2	0.0	0.0	0.0	1.5	0.5	0.7	0.5	0.2	0.3
WAE	21.5	11.7	21.3	12.7	6.0	4.8	9.2	13.5	8.0	17.3
WHB	1.8	0.8	0.7	1.8	0.8	1.2	0.5	0.0	3.2	1.8
WHS	1.5	3.2	2.3	3.5	3.7	1.2	1.7	2.0	1.5	1.7
YEP	28.5	33.5	55.8	43.7	30.0	7.5	21.0	35.8	27.5	56.0
<i>Electrofishing</i>										
SMB	205.6 ³	91.2 ³	240.0 ³	123.5 ³	96.3 ³	77.4 ⁴	---	51.0 ⁴	---	286.0
WAE ⁵	0.0	1.9	9.9	12.0	1.0	1.2	---	---	---	139.0

¹ Monofilament gill net mesh size change (0.75", 1.00", 1.25", 1.50", 2.00" and 2.50")

² All fish sizes.

³ Fall night electrofishing-SMB.

⁴ Spring night electrofishing-SMB.

⁵ Fall night electrofishing-WAE

Table 3. Mean catch rate (CPUE; gill/frame nets = catch/net night, electrofishing = catch/hour) of stock-length fish , proportional size distribution of quality- (PSD) and preferred-length (PSD-P) fish, and mean relative weight (Wr) for selected species captured in gill nets, frame nets, and electrofishing in Pickerel Lake, 2004-2013. BLC= Black Crappie; BLG= Bluegill; SMB= Smallmouth Bass; WAE= Walleye; YEP= Yellow Perch

Species	2004	2005	2006 ²	2007 ²	2008	2009	2010	2011	2012	2013	Objective
<i>Frame nets</i>											
BLB											
CPUE	1	2	2	3	19.4	14.9	4.6	3	4	6	≤100
PSD	93	67	73	28	95	95	91	76	73	86	---
PSD-P	36	50	21	9	1	28	71	73	32	54	---
Wr	96	93	100	102	89	94	90	95	93	92	---
BLC											
CPUE	4	1	8	13	16	12	4	4	3	9	≥ 10
PSD	96	100	99	20	61	97	100	100	56	100	30-60
PSD-P	62	60	99	18	7	4	58	88	47	69	5-10
Wr	101	104	94	117	109	103	99	95	110	96	---
BLG											
CPUE	6	4	14	17	29	10	4	3	5	13	≥ 25
PSD	98	74	38	58	90	98	87	43	61	99	30-60
PSD-P	10	57	15	3	6	44	56	15	6	39	5-10
Wr	129	126	115	116	121	115	112	127	124	125	---
<i>Gill nets</i>											
WAE											
CPUE	22	12	21	13	6	5	9	14	8	17	≥ 10
PSD	5	3	40	53	31	17	4	36	25	16	30-60
PSD-P	2	0	0	1	3	7	0	4	0	1	5-10
Wr	86	86	89	84	82	86	81	90	83	83	---
YEP											
CPUE	29	34	56	44	30	8	21	36	28	56	≥ 30
PSD	68	93	21	17	29	56	40	23	41	63	30-60
PSD-P	15	51	10	5	2	0	0	5	4	7	5-10
Wr	101	114	101	102	104	106	103	113	107	107	---
<i>Electrofishing</i>											
SMB ¹											
CPUE	---	---	---	---	---	77	---	51	---	286	---
PSD	---	---	---	---	---	44	---	27	---	30	40-70
PSD-P	---	---	---	---	---	25	---	4	---	6	10-20
Wr	---	---	---	---	---	89	---	97	---	89	---

¹ Spring night electrofishing-SMB.

² Monofilament gill net mesh size change (0.75", 1.00", 1.25", 1.50", 2.00" and 2.50")

Table 4. Year class distribution based on the expanded age/length summary for Black Crappie sampled in frame nets from Pickerel Lake, 2009-2013.

Survey Year	Year Class													
	2013	2012	2011	2010	2009	2008	2007	2006	2005	2004	2003	2002	2001	2000
2013				45	6				111					1
2012	---			22	2			1	20					
2011	---	---		3				2	65					1
2010	---	---	---					2	68					2
2009 ¹	---	---	---	---				6	197					1

¹ Older Black Crappie were sampled, but are not reported in this table.

Table 5. Weighted mean TL (mm) at capture for Black Crappie age-1 through age-10 sampled in frame nets (expanded sample size) from Pickerel Lake, 2006-2013.

Year	Age									
	1	2	3	4	5	6	7	8	9	10
2013	---	---	220(45)	238(6)	---	---	---	291(111)	---	---
2012	---	176(22)	226(2)	---	---	261(1)	279(20)	---	---	---
2011	88(3)	---	---	---	243(2)	263(65)	---	---	---	296(1)
2010	---	---	---	225(2)	251(68)	---	---	---	315(2)	---
2009 ¹	---	---	187(6)	231(197)	---	---	---	298(1)	---	---
2008	---	---	201(259)	236(1)	---	---	285(7)	291(2)	---	294(8)
2007	---	153(286)	213(3)	---	273(1)	286(9)	---	---	299(33)	---
2006	100(1)	139(3)	---	---	270(3)	---	---	291(13)	---	---

¹ Older Black Crappie were sampled, but are not reported in this table

Table 6. Mean back-calculated length (mm) at age and standard error (SE) for Smallmouth Bass captured during spring electrofishing (day/night samples combined) in Pickerel Lake, 2013.

Year	Age	N	Age									
			1	2	3	4	5	6	7	8	9	10
2011	2	8	100	197								
2010	3	129	89	179	260							
2009	4	44	79	166	241	298						
2008	5	11	83	147	238	301	337					
2007	6	4	86	156	244	302	332	354				
2006	7	4	82	151	213	257	316	345	367			
2005	8	5	94	166	223	272	311	358	384	407		
2004	9	0										
2003	10	1	80	158	212	271	333	368	391	408	435	443
Mean		206	87	165	233	284	326	357	380	407	435	443
SE			3	6	7	8	5	5	7	0	0	0
<i>Mean Comparison ¹</i>												
Small lakes/impoundments			98	180	241	291	---	---	---	---	---	---
Large lakes/impoundments			92	169	237	304	335	---	---	---	---	---
Region IV			96	179	249	316	339	---	---	---	---	---
Statewide			91	171	242	300	333	---	---	---	---	---

¹ Willis et al. 2001.

Table 7. Year class distribution based on the expanded age/length summary for Walleye sampled in gill nets and associated stocking history (# stocked x 1,000) from Pickerel Lake, 2009-2013.

Survey Year	Year Class													
	2013	2012	2011	2010	2009	2008	2007	2006	2005	2004	2003	2002	2001	2000
2013		1	19	68	6	4	3	4				1		
2012	---		7	26	4	4	4	7		1			1	
2011	---	---		5	3	25	10	36	2	1			3	
2010	---	---	---			17	14	26		1	1			
2009	---	---	---	---			3	18	2	3	1	2		1
# stocked														
Fry														
sm. fingerling	93													
lg. fingerling			19	17		15	1	25		27	19	14	56	

¹ Older Walleye were sampled, but are not reported in this table.

Table 8. Weighted mean TL at capture (mm) for Walleye age-1 through age-10 sampled in experimental gill nets (expanded sample size) from Pickerel Lake, 2005-2013. Note: sampling was conducted at approximately the same time during each year allowing comparisons among years to monitor growth trends.

Year	Age									
	1	2	3	4	5	6	7	8	9	10
2013 ¹	186(1)	277(19)	346(68)	385(6)	412(4)	421(3)	442(4)	---	---	---
2012 ¹	207(7)	277(26)	312(4)	376(4)	---	417(7)	---	483(1)	---	---
2011	178(5)	277(3)	333(25)	377(10)	385(36)	363(2)	380(1)	---	---	546(3)
2010	---	258(17)	311(14)	322(26)	---	433(1)	398(1)	---	---	---
2009	---	258(3)	316(18)	358(2)	385(3)	563(1)	486(2)	---	486(1)	---
2008 ¹	190(3)	262(19)	331(3)	375(10)	447(3)	393(3)	461(2)	---	---	---
2007	211(6)	295(2)	358(31)	388(15)	445(8)	433(16)	489(3)	---	---	---
2006	---	300(26)	333(34)	387(15)	398(49)	469(3)	---	---	495(1)	---
2005	---	255(12)	310(15)	349(47)	---	---	408(1)	---	---	---

¹ Older Walleye were sampled, but not reported in this table.

Table 9. Stocking history including size and number for fishes stocked into Pickerel Lake, 2000-2013. LMB= Largemouth Bass; SMB= Smallmouth Bass; WAE= Walleye

Year	Species	Size	Number
2001	LMB	fingerling	8,350
	WAE	large fingerling	56,250
2002	WAE	large fingerling	13,695
2003	WAE	large fingerling	18,582
2004	SMB	fingerling	700
	WAE	large fingerling	26,940
2006	LMB	fingerling	101,500
	WAE	large fingerling	25,146
2007	WAE	large fingerling	765
2008	WAE	large fingerling	15,135
2010	WAE	large fingerling	17,442
2011	WAE	large fingerling	18,585
2012	WAE	small fingerling	93,410

Table 10. Year class distribution based on the age/length summary for Yellow Perch sampled in gill nets from Pickerel Lake, 2009-2013.

Survey Year	Year Class										
	2013	2012	2011	2010	2009	2008	2007	2006	2005	2004	2003
2013		1	27	127	149	30		3	2		
2012	---		22	44	79	25	3	8	2	3	
2011	---	---		30	130	65	7	11	7	3	1
2010	---	---	---		22	68	11	24	20	4	
2009	---	---	---	---			2	9	15	18	1

Table 11. Weighted mean TL (mm) at capture by gender for Yellow Perch captured in experimental gill nets (expanded sample size) from Pickerel Lake, 2009-2013.

Year	Age							
	1	2	3	4	5	6	7	8
2013								
Male	99(1)	133(9)	183(18)	210(15)	234(1)	---	---	---
Female	---	140(18)	194(122)	228(123)	248(27)	---	268(3)	277(2)
Combined	99(1)	137(27)	193(127)	222(149)	247(30)	---	268(3)	277(2)
2012								
Male	97(8)	146(14)	185(12)	218(5)	---	224(4)	238(1)	---
Female	105(14)	154(29)	197(68)	229(18)	239(3)	260(3)	265(1)	269(3)
Combined	102(22)	150(44)	195(79)	224(25)	239(3)	237(8)	252(2)	269(3)
2011								
Male	94(13)	142(26)	181(13)	---	---	215(1)	---	---
Female	95(17)	148(108)	195(48)	223(7)	238(11)	254(6)	256(3)	251(1)
Combined	95(30)	146(130)	192(65)	223(7)	238(11)	248(7)	256(3)	251(1)
2010								
Male	98(8)	144(7)	185(2)	---	200(3)	---	---	---
Female	95(12)	147(61)	195(9)	222(24)	226(17)	233(4)	---	---
Combined	96(22)	147(68)	193(11)	222(24)	222(20)	233(4)	---	---
2009								
Male	---	---	162(2)	189(5)	247(1)	---	---	---
Female	---	150(2)	174(7)	200(10)	220(17)	---	---	---
Combined	---	150(2)	171(9)	196(15)	221(18)	220(1)	---	---

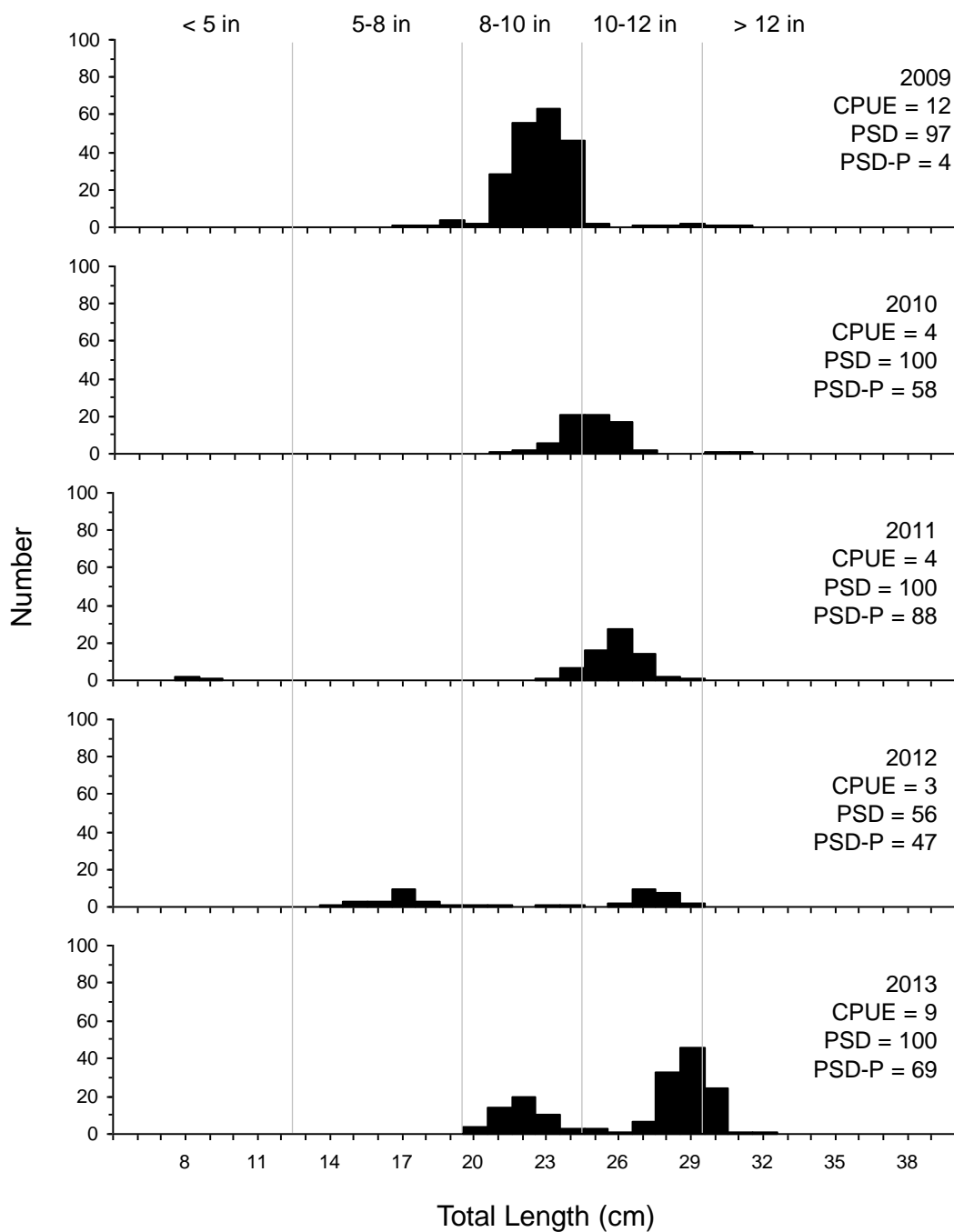


Figure 3. Length-frequency histogram, catch rate of stock-length fish (CPUE), proportional size distribution of quality- (PSD) and preferred-length (PSD-P) fish for Black Crappie captured using frame nets in Pickerel Lake, 2009-2013.

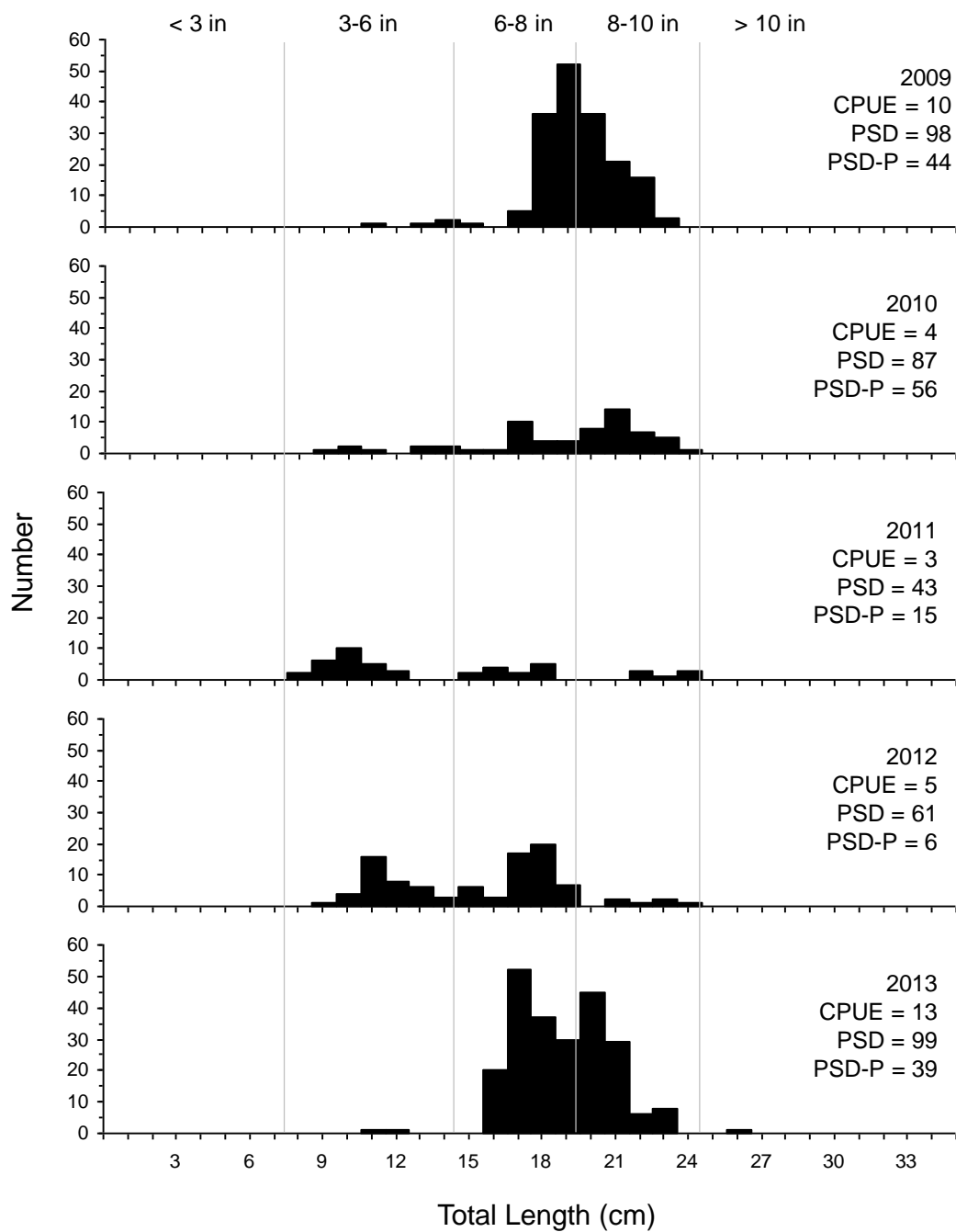


Figure 4. Length-frequency histogram, catch rate of stock-length fish (CPUE), proportional size distribution of quality- (PSD) and preferred-length (PSD-P) fish for Bluegill captured using frame nets in Pickerel Lake, 2009-2013.

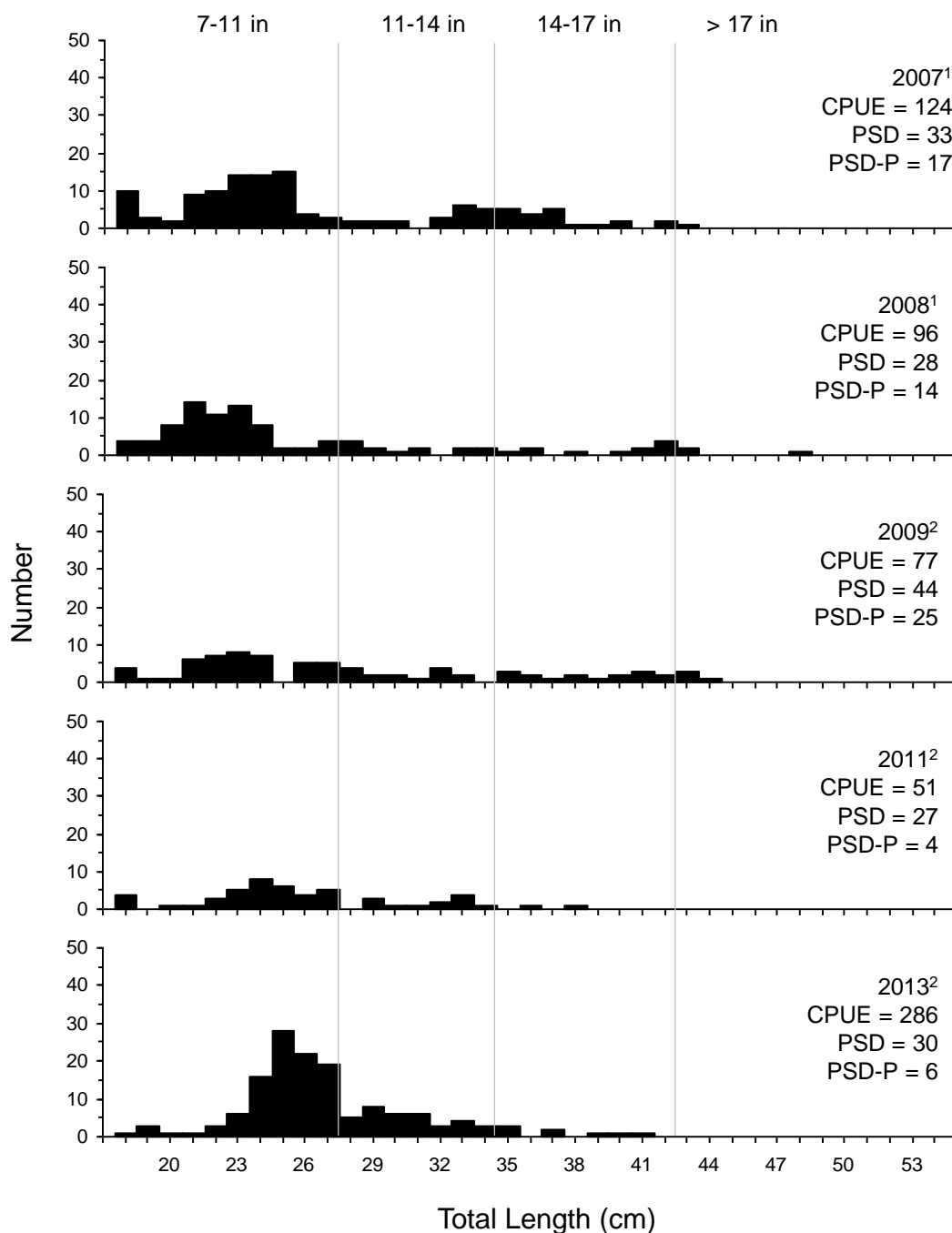


Figure 5. Length-frequency histogram, catch rate of stock-length fish (CPUE), proportional size distribution of quality- (PSD) and preferred-length (PSD-P) fish for smallmouth bass captured using night electrofishing in Pickerel Lake, 2007-2013.

¹ Fall night electrofishing; ² Spring night electrofishing

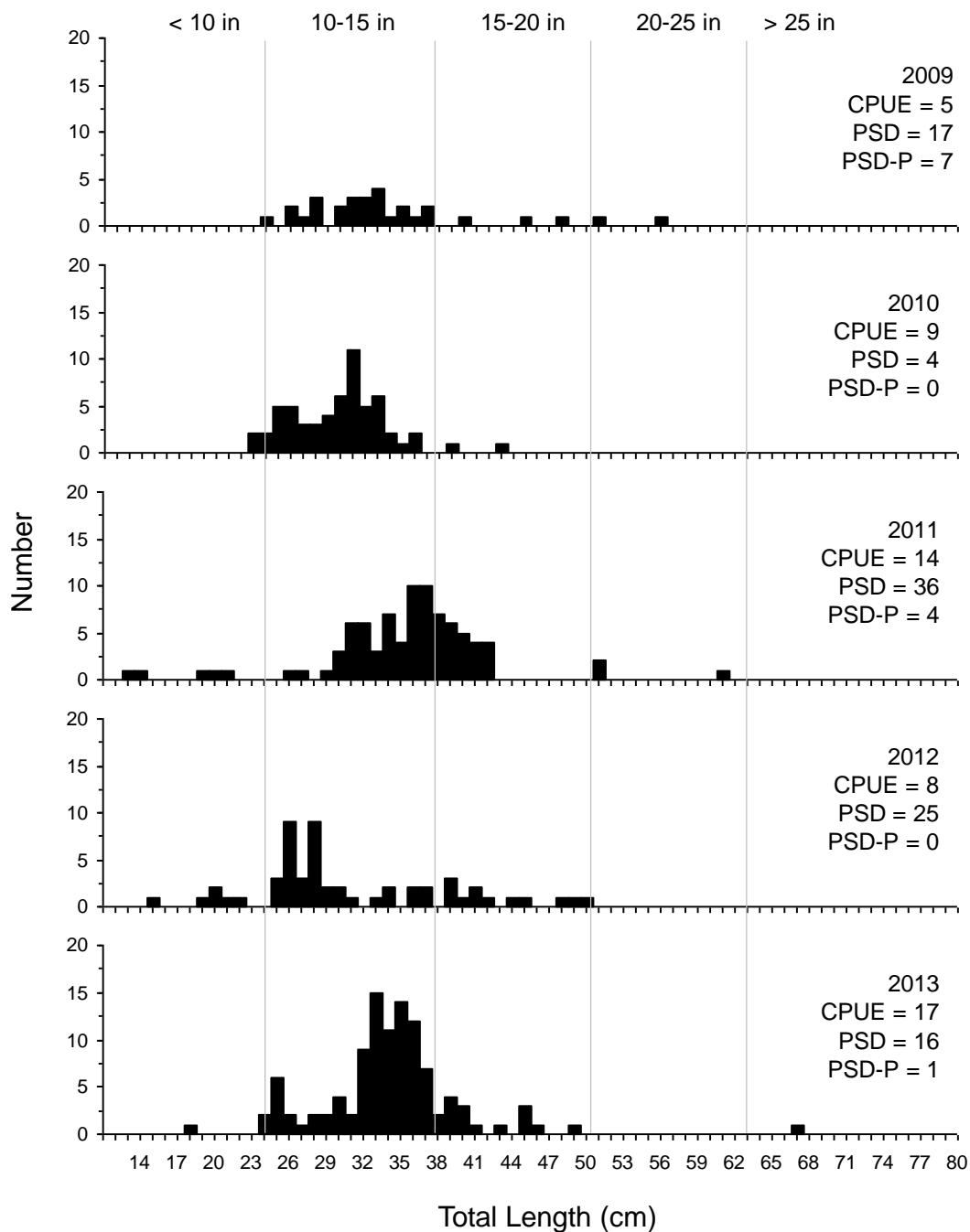


Figure 6. Length-frequency histogram, catch rate of stock-length fish (CPUE), proportional size distribution of quality- (PSD) and preferred-length (PSD-P) fish for Walleye captured using gill nets in Pickerel Lake, 2009-2013.

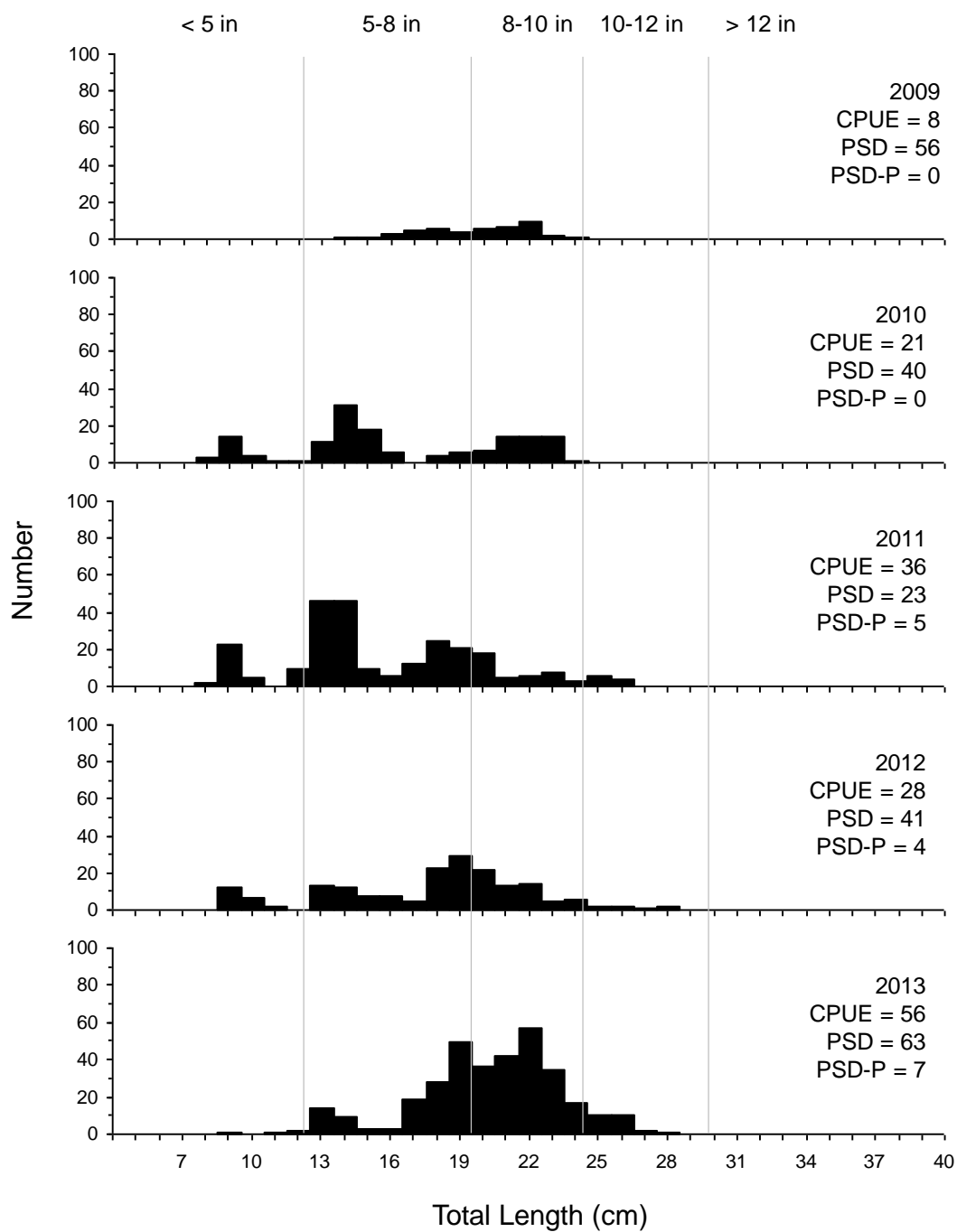


Figure 7. Length-frequency histogram, catch rate of stock-length fish (CPUE), proportional size distribution of quality- (PSD) and preferred-length (PSD-P) fish for Yellow Perch captured using gill nets in Pickerel Lake, 2009-2013.

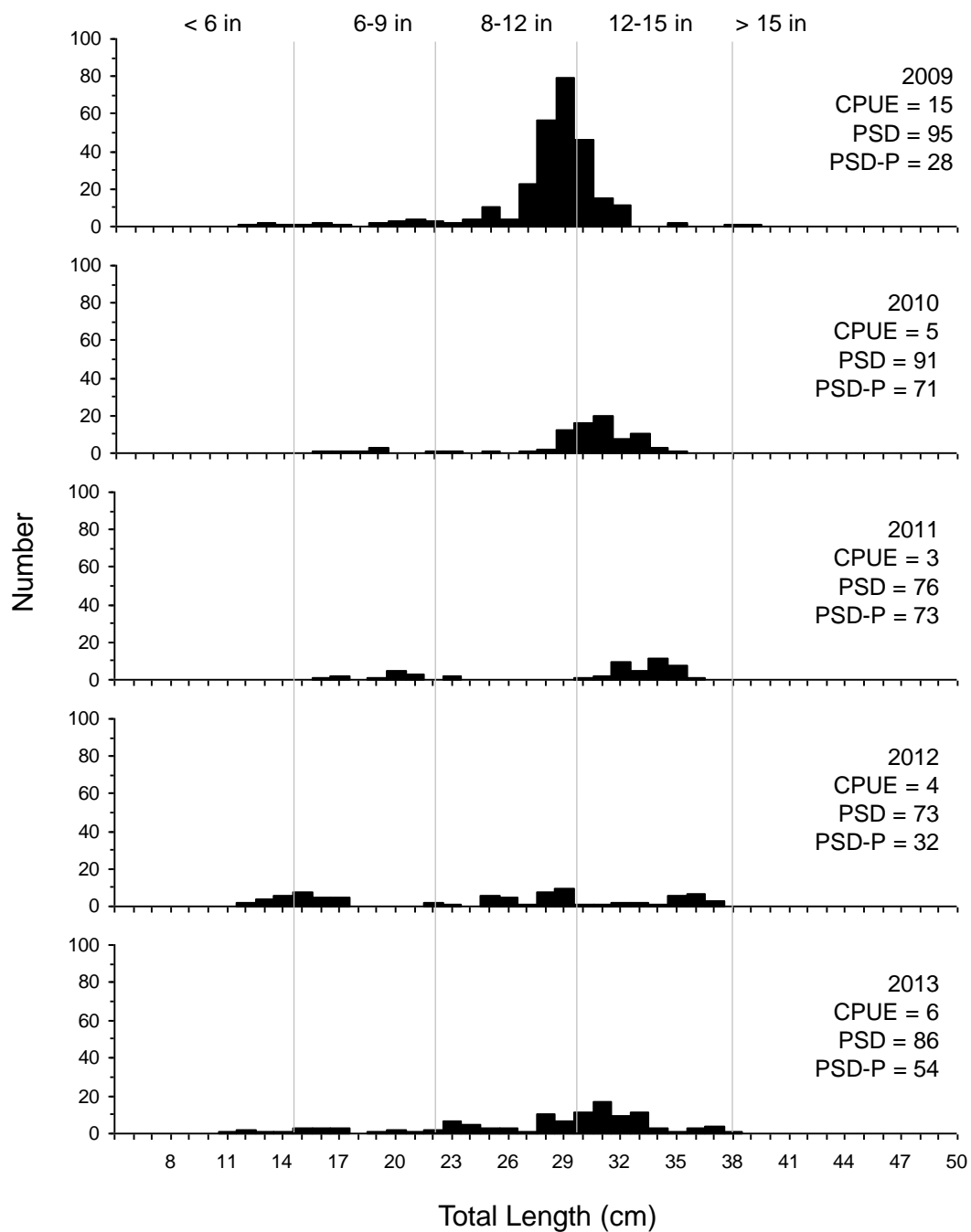


Figure 8. Length-frequency histogram, catch rate of stock-length fish (CPUE), proportional size distribution of quality- (PSD) and preferred-length (PSD-P) fish for Black Bullhead captured using frame nets in Pickerel Lake, 2009-2013.

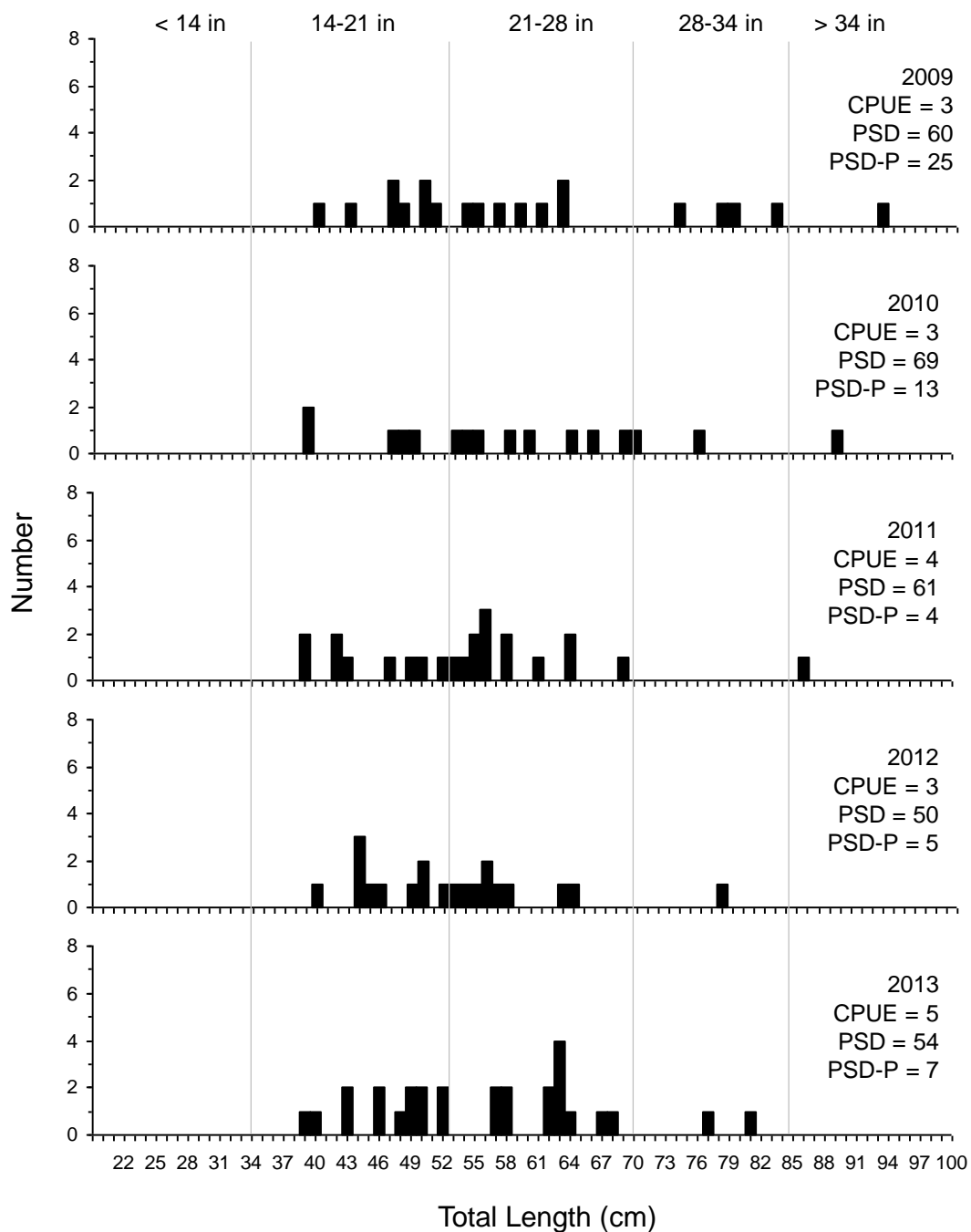


Figure 9. Length-frequency histogram, catch rate of stock-length fish (CPUE), proportional size distribution of quality- (PSD) and preferred-length (PSD-P) fish for Northern Pike captured using gill nets in Pickerel Lake, 2009-2013.

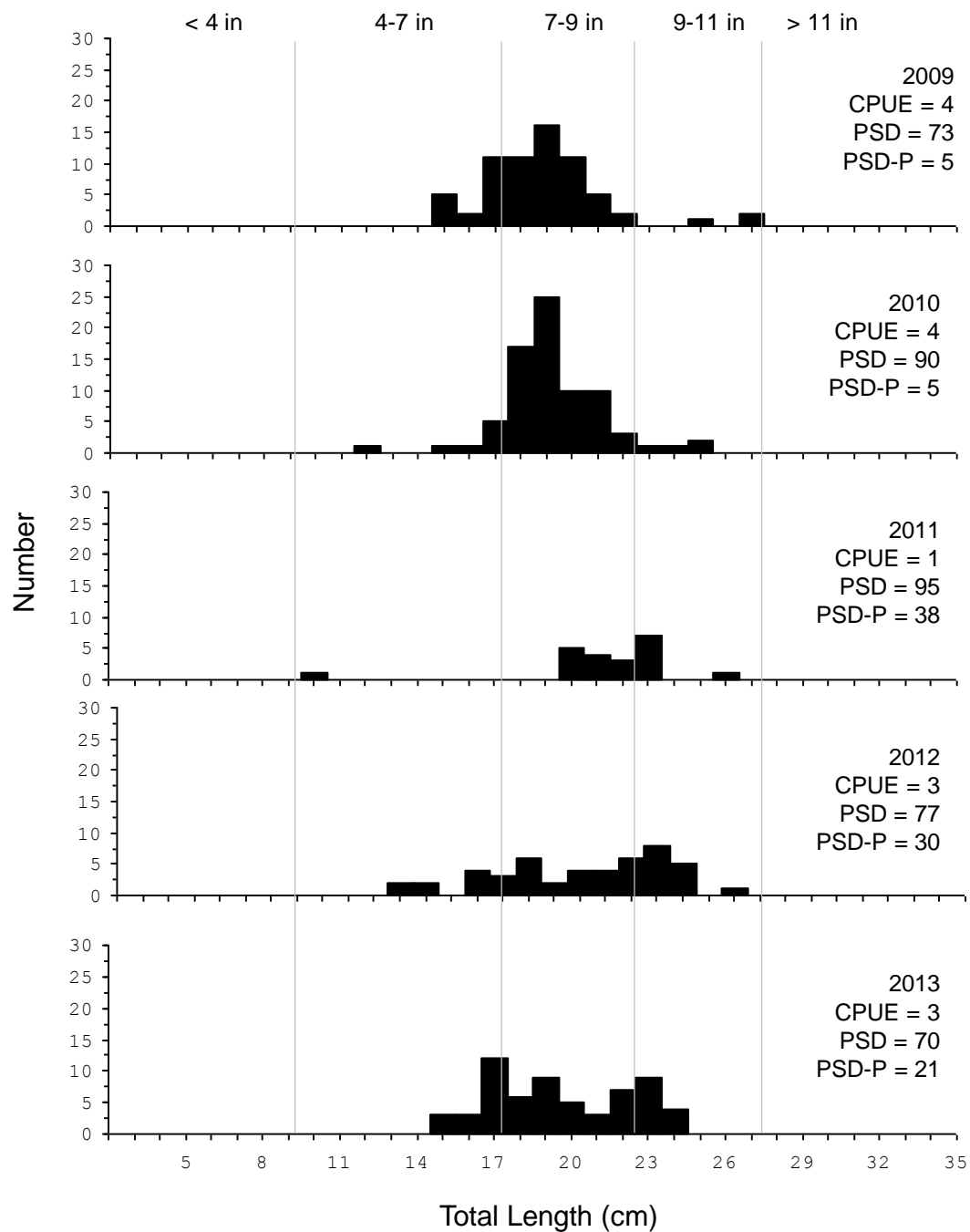


Figure 10. Length-frequency histogram, catch rate of stock-length fish (CPUE), proportional size distribution of quality- (PSD) and preferred-length (PSD-P) fish for Rock Bass captured using frame nets in Pickerel Lake, 2009-2013.